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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,500	01/10/2002	Tomoyuki Fujii	791_182	9278

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EXAMINER	
KITOV, ZEEV	

ART UNIT	PAPER NUMBER
2836	

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/044,500	FUJII ET AL.	
	Examiner	Art Unit	
	Zeev Kitov	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 4, 6, 8, 9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1 - 4, 6* is/are rejected.

7)☒ Claim(s) *8 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Examiner acknowledges reception of the Amendment and Remarks filed on October 07, 2004, which have been addressed below in the current Office Action.

Election/Restrictions

Examiner acknowledges reception of the Applicant's election of Claims 1 – 4, 6, 8 and 9 for examination. As to Applicant's arguments that the restricted subject matter should be examined together with the selected claims, they have been found non-persuasive, since the apparatus and the method of its manufacturing are known to be well established different subject matters. Since the restricted claims have different classification, according to PTO practice, examination usually requires consultation with other art units thus presenting additional burden.

Objection

Claim 8 is objected to since it includes a following limitation: "said bonding layer comprising only a first outermost silicone layer"....

The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim language which means that the named elements are essential,

but other elements may be added and still form a construct within the scope of the claim.); *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986); In re Baxter, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); Ex parte Davis, 80 USPQ 448, 450 (Bd. App. 1948) ("comprising" leaves "the claim open for the inclusion of unspecified ingredients even in major amounts"). MPEP 2111.03 [R-2]. Therefore the term "only" contradicts the term "comprising". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga (US 6,256,187) in a view of Tomaru et al. (US 6,071,630). Matsunaga discloses most of the elements of Claim 1 including an electrostatic chuck having a bonded structure comprising a ceramic electrostatic chuck member (element 22 in Fig. 1, col. 4, lines 1 – 18), a metal member (element 12 in Fig. 1), and a first and second bonding layers (elements 20 and 14 in Fig. 1); the first bonding layer is being bonded to the ceramic chuck, the second bonding layer is bonded to the metal member (element 12 in Fig. 1); it further discloses a polyimide layer (element 14 in Fig. 1, col. 6, lines 3-

16) being disposed between said first and second most outer bonding layers. It further discloses a structure of an adhesive sheet (Fig. 7, col. 8, lines 53 – 67, col. 9, lines 1 – 21), which includes polyimide film (element 14 in Fig. 7) sandwiched between two external layers (elements 42 in Fig. 7). These external layers include silicone resin (col. 9, lines 16 – 21). However, it does not disclose the silicone bonding layers. Tomaru et al. discloses the silicone bonding layers (elements 18 and 20 in Fig. 1 and 2, col. 2, line 66 – col. 3, line14, col. 5, lines 18 - 32). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Matsunaga solution by adding the bonding silicone layers, because of the silicon advantages, such as, according to Tomaru et al. (col. 1, lines 63 – 67), the excellent thermal conductivity and heat dissipation and ability to withstand high temperatures.

2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga in a view of Tomaru et al. and further in a view of Court Decision *In re Aller,* 105 USPQ 233. As was stated above, Matsunaga and Tomaru et al. disclose all the elements of Claim 1. Regarding Claim 2, Tomaru et al. disclose the thickness of bonding layer as being 0.1 to 30 μm (col. 6, lines15 – 17), while Applicant uses 50 – to 500 μm. There is a minor gap between two ranges. The Court Decision addresses this issue stating that discovering the optimum or workable ranges does not represent a novelty or an innovative step. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the enlarged bonding layers thickness, because as Court Decision states, it has been held that where the

general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga in a view of Tomaru et al. and further in a view of Parkhe (US 5,909,355). As was stated above, Matsunaga and Tomaru et al. disclose all the elements of Claim 1. However, regarding Claim 3, they do not disclose a base material made of aluminum nitride and being sintered with an electrostatic chuck electrode. Parkhe discloses the electrostatic chuck having a base material made of aluminum nitride (element 206 in Fig. 3) and being sintered with an electrostatic chuck electrode (col. 3, lines 53 –67 and col. 4, lines 1 – 35). Both patents have the same problem solving area, namely design of the electrostatic chucks. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the Matsunaga system by using the aluminum nitride ceramic, which is sintered with an electrostatic chuck electrode according to Parkhe, because according to Parkhe (col. 1, lines 44 – 67, col. 2, lines 1 –13), this will resolve a problem of reduced ceramic resistivity at high temperatures.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga in view of Tomaru et al. and further in view of McMillin et al. (US 5,835,334). As was stated above, Matsunaga and Tomaru et al. disclose all the elements of Claim

1. However, regarding Claim 4, they do not disclose a value of flatness of an adsorption surface in the electrostatic chuck as being 30 μm or less. McMillin discloses the flatness as being of 0.001 inches, which is slightly smaller than a value of 30 μm cited in the claim. Both patents have the same problem solving area, namely design of the electrostatic chucks. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used ceramic material with the flatness of 0.001 inch according to McMillin et al. in the electrostatic chuck of Matsanuga, because as McMillin states (col. 4, lines 30 – 36), the coating should be non-porous and provide an electrical voltage breakdown strength of at least 500 volts/mil. As well known in the art, reduction in a degree of a surface flatness increases the voltage breakdown value.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga in a view of Tomaru et al. and further in a view of Ushikoshi et al. (US 6,057,513). As was stated above, Matsunaga and Tomaru et al. disclose all the elements of Claim 1. Regarding Claim 6, Matsunaga disclose the electrode (element 18 in Fig. 1) being protected by the ceramic chuck member (element 22 in Fig. 1). However, the electrode is not being embedded within the ceramic chuck member. Ushikoshi et al. disclose the electrode (element 2 in Fig. 1) as being embedded within the ceramic chuck member (element 1 in Fig. 1). Both references have the same problem solving area, namely providing the electrostatic chucks. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made

to have further modified the Matsunaga et al. solution by adding the electrode embedded within the ceramic chuck member according to Ushikoshi et al., because as Ushikoshi et al. state (col. 1,lines 11 – 39), it is necessary to protect the electrode from corrosive substances, such as halogen type gas.

Allowable Subject Matter

Claims 8 and 9 would be allowable if rewritten or amended to overcome the Objection, set forth in this Office action. A reason for that is that Claim 8 discloses the bonding layer for electrostatic chuck including a first and a second outmost layers, wherein the first outmost silicone bonding layer bonded to the ceramic electrostatic chuck member, a second outmost silicone bonding layer bounded to the metal member and a polyimide layer disposed between the first and the second outmost bonding layers. Such structure was not found in a collected prior art of the record. The Matsunaga reference alone or in combination with Tomaru reference does not read on this claim.

Response to Arguments

1. Applicant argues that Matsunaga reference does not disclose the chuck having an electrode in direct contact therewith. However, comparing the chuck structures of Applicant and Matsunaga, one can easily come to conclusion that in this respect they are identical. Indeed, Applicant has the electrode (element 18 in Fig. 2) embedded in the chuck and therefore being surrounded by isolative layers of the chuck (element 10

in Fig. 2). Matsunaga has the electrode (element 18 in Fig. 1) embedded between two isolative layers of the chuck (layers 16 and 20 in Fig. 1). Thus Matsunaga reference completely satisfies the Applicant's Claim 1 limitation of the electrode being in direct contact with the electrostatic chuck. In both systems of Applicant and Matsunaga, the electrode is a part of the chuck structure.

2. Applicant's argument that the Tomaru structure includes "a metallic plate 10, on which a first insulating layer 12, a conductive pattern 14 and a second insulating layer 16 are formed in this order" is immaterial; a question whether to include the metal plate into a chuck structure or to consider it as separate element is just a matter of preferred model of consideration having no real structural implications. At the end, a whole product with all its parts is supposed to work, non-withstanding if someone considers the metal plate being a part of the chuck or a separate item firmly attached to the chuck.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose current telephone number is (571) 272 - 2052. The examiner can normally be reached on 8:00 – 4:30. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272 – 2800, Ext. 36. The fax phone number for organization where this application or proceedings is assigned is (703) 872-9306 for all communications.

Z.K.
04/05/2005

Stephen W. Jackson 4-8-05

STEPHEN W. JACKSON
PRIMARY EXAMINER